# Quantization of SEW and REW components for 3.6 kbit/s coding based on PWI

Bhaskar, U. Nandkumar, S. Swaminathan, K. Zakaria, G.
Hughes Network Syst. Inc., Germantown, MD, USA;

*This paper appears in:* **Speech Coding Proceedings, 1999 IEEE Workshop on**

Meeting Date: 06/20/1999 - 06/23/1999
Publication Date: 20-23 June 1999
Location: Porvoo Finland
On page(s): 99 - 101
Reference Cited: 3
Number of Pages: viii+182
Inspec Accession Number: 6496956

**Abstract:**
The design of a prototype waveform interpolation (PWI) based codec, operating at 3.6 kbit/s, is presented with main focus on the quantization of the slowly evolving waveform (SEW) and rapidly evolving waveform (REW) components. The SEW magnitude component is quantized using a hierarchical mean-shape-gain predictive vector quantization approach. SEW phase is derived using a phase model, based on a measure of voice periodicity. The REW magnitude is quantized using a gain and a sub-band based shape. The REW phase is obtained by high pass filtering a weighted combination of the SEW and a white noise process

**Index Terms:**
filtering theory interpolation phase coding **speech** codecs **speech** coding vector quantisation white noise 3.6 kbit/s PWI based codec REW components REW magnitude REW phase SEW components SEW magnitude SEW phase hierarchical mean-shape-gain predictive vector quantization high pass filtering prototype waveform interpolation rapidly evolving waveform slowly evolving waveform **speech** coding white noise process